Methods of Breaking Seed Dormancy :-

Plant growth are of interested to obtained seeds that will have very short dormant period or have no dormant period or have no dormant period at all. Majority of the plants have got a considerable dormant period. So, methods have been derived to break this dormancy of seeds are given below :-

(I) Mechanical or Scarification :-

Considerable attention has been given to the effectiveness of the mechanical removal or scarification of the seed coat in breaking seed dormancy. This methode can be successfully applied in obtaining germination of seeds where coats are considerable hard on coats which can limits the entry of grases or when it is limited by growth inhibitions in the seed coat. The scarification creats a crack on the seed coat. The scarification creats a crack on the seed coat which favours the entry of water and thus permit quick germinations.

(II) Temperature :-

(a) Low temperature :- Low temperature treatment in breaking dormancy has been known and utilized for many years. In some cases, very low temperature (near freezing) for a brief exposal is very effective in breaking dormancy of the seed while other an extended period to expose is needed. Temperature near freezing (± 5°C) is usually most effective through in some cases 10°C is enough for the purpose. The practice of chiling seeds and buds in breaking their dormancy has some times gives a name that is seed Startification.

Low temperature treatment which usually causes an extensive changes is the distribution of food material from the endosperm to the embryo has been shown by Stokkes (1952) in Heracleum Seeds cold treatment can break dormancy of cherry seeds through an unblocking of phosphorous metabolism in the embryo.

(b) Alternating temperature :- variation in the low temperature treatment and the requirement of alternating temperature in breaking dormancy was 1st observed by Mavinage (1926) Toole et. al. (1955) has shown that by alternating temperature between 15°c - 25°c the percentage of germination is considerably increased. Cohen (1958) has shown that the elevation of temperature can bring about a structural changes which is promotive of germination.

(iii) Light :- Light can be considered as another factor for stimulating germination. It effects is quantitative, germination percentage is increased with gradual light exposure. This effect mainly shows an inter relations between light and temperature.

In lettuce seed it has been found that the red light was the most effective in breaking dormancy whereas the blue or far red light was very inhibitory for germination.

Some seeds have photoperiod requriement for germination. As for example the seed of Eragrostis ferruginea have a long day requriment whereas in Veronica parcica has short day requriment.

(iv) Breaking of Dormancy Through Gene Depression

Evidence exists that the primary act in the breaking of potato bud dormancy may involve derepression of repressed genes.

(v) Growth regulation or chemical :-

A number of growth regulators like gibberellin cyto kinins have been found to increase germination of seeds by breaking dormancy. A number of chemical can effectively break dormancy of which the most important is ethylene. Thiourea and potassium nitrate are also equally effective.

- Difference between Quiescence And Dormancy

Quiescence	Dormancy
1. Quiescence is a state of suspended growth of the embryo or a resting condition of the seed.	1. Dormancy is a state that required a special event or 'trigger' before the embryo can resume growth such as fiber, scarification or cold treatment. Until such an event occurs the seed is prevented from germinating.
(2) It can be reversed upon the return of suitable conditions.	(2) cannot be reversed quickly
(3) The time period of quiescence is relatively short.	(3) The time period can be a few months to years.
(4) Seen in fast plants rapid cycling variety of plants.	(4) Not seen in fast plants